CORRESPONDENCE

Decline in the Birth-Rate

To the Editor, Eugenics Review

SIR,—In his paper on " The Decline in the Birth-rate " (October 1934, page 193), Dr. W. Wagner-Manslau has compiled some figures illustrating the increase of a number of European nations during the nineteenth century. He shows that the German population increased more rapidly during the first decades of the century than in the time from 1840 to 1870. From this fact Wagner-Manslau draws the following conclusion : " Had the figures increased after 1810 . . . the increase might have been due to advances in sanitation and general hygiene. Since, however, they decrease rapidly, they can only represent a considerable decline in the birth-rate."

Fortunately, the gross increase-rate is not our only source of information. We have at our disposal birth- and death-rates of all the important parts of the later German empire, reaching back to the twenties or even further. Let us take the largest state, Prussia, as an example :

	marriage-rate.	birth-rate.	death-rate.	surplus-rate.
1816-20	10·6	42·5	27·4	15·1
1821-30	8·9	40·0	26·7	13·3
1831-40	9·1	38·0	28·8	9·2
1841-50	8·9	38·0	26·6	11·4
1851-60	8·6	37·7	27·6	10·1
1861-70	8·5	38·3	27·0	11·3
1871-80	8·7	39·0	26·7	12·3
1881-90	8·1	37·4	24·7	12·7
1891-1900	8·3	36·7	21·9	14·8

The marriage-rate and the birth-rate are high immediately after the Napoleonic wars, but afterwards, from about 1925 up to the " foundation times," conditions remain fairly constant. There is no indication of a " considerable decline in the birth-rate " about 1850. After the war against France there is another wave of fertility, but in the last decades of the century the birth-rate begins to drop, the rapidity of the decline increasing very much after 1900.

Neither does the death-rate show great fluctuations ; it remains about 27 per 1,000 inhabitants up to the 'seventies, and declines afterwards even quicker than the birth-rate. Only in the decade 1831 to 1840 is mortality higher, owing to the great cholera epidemic.

In Bavaria, Saxony, etc., the trend of the figures is about the same. Now, why did the German population increase so slowly during the middle decades of the nineteenth century ? The riddle is easily solved when we look at the emigration statistics. The following table shows the total

oversea emigration from the territory of the Reich in every decade. There is one climax after the revolution of 1848 and another in the 'eighties. They correspond exactly with the lowest increase rates in Wagner-Manslau's table.

		Total emigration
1820-40	...	176,000
1841-50	...	469,000
1851-60	...	1,075,000
1861-70	...	833,000
1871-80	...	626,000
1881-90	...	1,342,000
1891-1900	...	530,000

The population of Russia increased much more quickly after than before 1861. Wagner-Manslau believes that the Russian birth-rate increased after the peasants' emancipation in that year. As a matter of fact, the birth-rate remained as it was and the death-rate went down.

	birth-rate	death-rate
1841-50	48·3	40·3
1851-60	48·6	40·3
1861-70	49·3	37·1
1871-80	49·2	35·3
1881-90	48·6	33·9
1891-1900	48·0	32·9

Finally, I must draw your attention to the fact that the incredibly low increase of population in the United Kingdom between 1840 and 1850 is, of course, only due to the inclusion of Ireland, where as a result of the great famine the population was reduced from 8·2 to 6·6 millions. The population of England alone increased nearly 13 per cent. during that decade.

CHRISTOPH TIETZE.

Vienna.

Biometrika

To the Editor, Eugenics Review

SIR,—I shall be much obliged if you will permit me to correct a mis-statement which occurs on page 237 (October 1934) of your valuable journal. *Biometrika* was founded for the statistical study of biological problems, but the first four lines of the first issue of that journal, repeated from the circular that announced its foundation, run as follows :

" It is intended that *Biometrika* shall serve as a means not only of collecting under one title biological data of a kind not systematically collected or published in any other periodical, *but also of spreading a knowledge of such statistical theory as may be requisite for their scientific treatment.*" (Vol. I, p. 1, 1901.)

The italics are mine. It was under this aspect of its functions that a remarkably progressive paper by R. A. Fisher, which had nothing to do with applied biometry, but solely advanced statistical theory, was published in 1915.

Your reviewer complains that while *Biometrika* in its early years contained many papers of eugenic interest and importance, it has since the war ceased to do so. The reason for this is obvious. The material that came to my hands was so copious and, in my judgment at least, so good, that it was necessary to publish it elsewhere, and for this purpose the *Eugenics Laboratory Memoirs*, and ultimately the *Annals of Eugenics*, were founded to issue this material. Now that the control of those publications has passed into other hands *Biometrika* will no doubt as formerly be happy to receive eugenic papers of interest and importance.

One word further. Your critic states that *Biometrika* " was formerly published by the Galton Laboratory." This is completely erroneous. The only publishers have been the Cambridge University Press, and, after 1922, for economic reasons, myself. *Biometrika* was founded ten years before the Galton Laboratory came into existence. Financially, it has never in any way depended on the funds of the Galton Laboratory, but has been run throughout by private support. Since 1922 it has been *issued*, at first from the Biometric Laboratory—and now from the *Biometrika Office*, University College. I have in both cases to record my thanks to the College for providing me with the accommodation needful to carry on my work.

KARL PEARSON.

Department of Zoology,
University College, London.

Brain and Mind

To the Editor, Eugenics Review

Sir,—Sir Josiah Stamp honoured my work on the East African with a mention in his Galton Lecture (EUGENICS REVIEW, July 1934, page 107), and it seems desirable to make clear that I have not suggested anywhere that brain capacity is a measure of individual mental capacity.

The matter of standards has always appeared to me to be of primary importance to the kind of comparative racial research in which I am interested and I am, therefore, glad to be able to enclose a communication on this point from Mr. A. Walter, our well-known East African statistical authority.

H. L. GORDON.

Nairobi.

P.O. Box 931,
Nairobi.
September 26th, 1934.

DEAR DR. GORDON,

Sir Josiah Stamp's references to our work on the statistical problems presented by your researches into amentia in the East Africa are very suggestive.

The frequency distribution which Sir Josiah Stamp proposes takes either the parabolic form $y = ax^b$ or the hyperbolic form $y = ax^{-b}$. Even accepting his limitation that the frequency curve is to refer only to those above the deficiency level, it seems to me that his suggestion must presuppose one of two conditions. In the distribution represented by $y = ax^b$, the numbers will increase with increasing intelligence, a very unlikely distribution in any universe, whether it is a general or selective one. In that represented by $y = ax^{-b}$, there would be a small number of highly intelligent personalities and the numbers of those of lower intelligence would steadily increase. The proportions would, of course, be measured by the slope of the logarithmic curve, as Sir Josiah Stamp states, but it is the *form* of the distribution suggested which appears to me to be fundamentally wrong.

In the distribution of brain capacity obtained from your researches, although the curve approached the normal curve $y = ke^{-ax^2}$, this was probably due to insufficient material; but, even in these scanty observations, asymmetry is marked, being thrown towards the origin in the case of aments and away from it in the case of the educated class.

It seems more than likely that a distribution similar to the Pearsonian Type IV would represent the true distribution more consistently than the logarithmic curve in measurements both of physical and mental fitness, as it does in many other biological measurements.

This Type IV distribution has some outstanding characteristics which may be found of great assistance in future research work. The shape, but not necessarily the type of the frequency distribution curve, must clearly depend on the standard adopted. Type IV is asymptotic—i.e. a perfect genius or a perfect imbecile would not occur, however closely some one individual might approach these standards. If the standard adopted were very high, then there would be a crowding up towards the origin of the curve where the mode would occur : the distribution would be markedly asymmetric and might even approach the hyperbolic form suggested by Sir Josiah Stamp, or perhaps more correctly Type III of the Pearsonian series. On the other hand, if the standard adopted were very low, the mode would shift to the right. Hence the whole problem of distribution is clearly dominated by standards of comparison.

Type IV curve suggests itself as a very powerful analytical instrument. Not only would the asymmetry of the curve measure the suitability of the standard adopted, but the varying asymmetry in different distributions derived from different universes, for which the same standards had been used, would serve as a measure of comparative intelligence between the universes (race or class)